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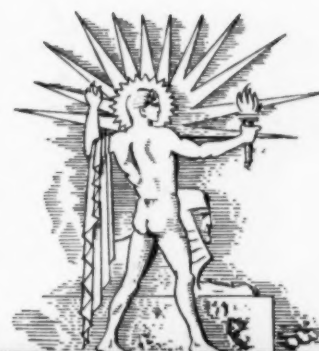
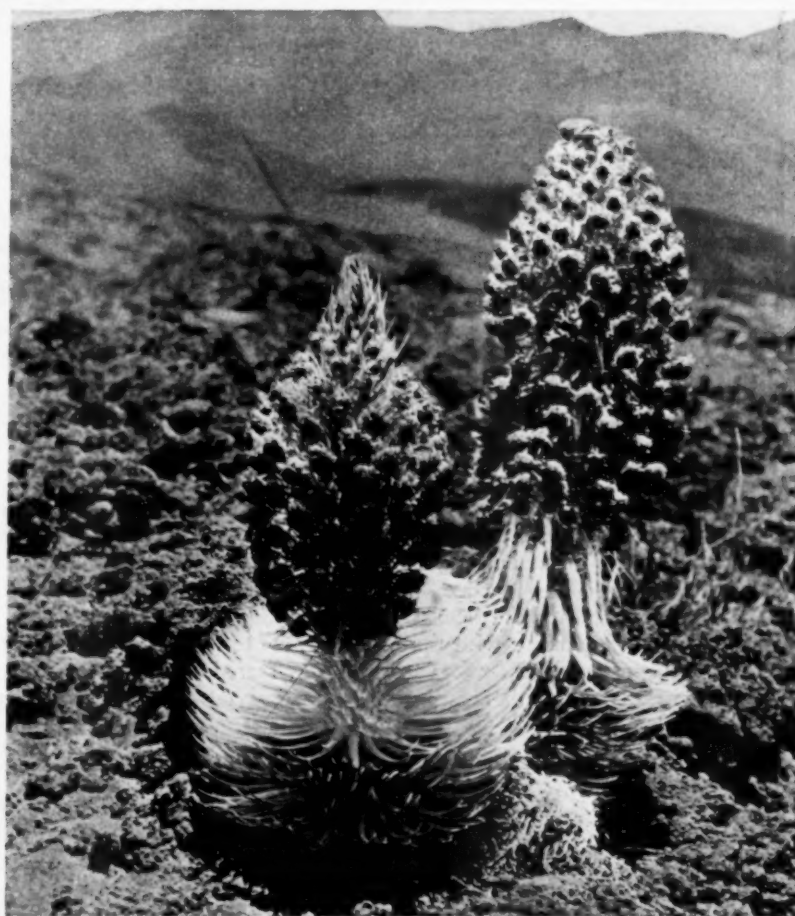
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OCT 10 1939

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE.



October 7, 1939

Silversword

See Page 237

A SCIENCE SERVICE PUBLICATION

Do You Know?

Having reclaimed the Pontine Marshes, Italy is now turning to Sicily and instituting land reforms to increase the number of small farms.

There are about 50 British breeds of sheep, says a zoologist, and all trace ancestry apparently from the European mouflon and the Asiatic urial.

By removing fences and other modern "blots" from the landscape, many vistas in Yosemite National Park are now as they were when viewed by early explorers.

In little more than a single generation airplanes have increased in speed from 45 miles to a maximum of more than 450 miles an hour.

The world's first horizontal oil well was recently drilled sideways by engineers near Zanesville, Ohio, thereby demonstrating a method of salvaging oil left behind by the usual vertical drilling.

Digging at Novgorod, Soviet archaeologists have unearthed traces of an eleventh century market, including a pine log pavement, beams that supported counters, and remnants of vegetables, grain, fruits, and berries.

More than 80% of the soldiers wounded in the World War were restored by medical and surgical aid, so that they returned either to military duty or to effective citizenship, says the U. S. Army's surgeon general.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

AGRICULTURE

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Why do psychologists feel that soldiers should wear bright uniforms? p. 228.

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RADIO

What does "vu" mean? p. 233.

What proportion of the world's radio amateurs have been lost from the air? p. 233.

Why can a deeply submerged submarine not send radio messages? p. 232.

Lion cubs are marked by dark spots, which gradually fade until the adult animal has a plain coat all over.

Under the title "Food and Life," the U. S. Department of Agriculture's 1939 yearbook, soon to be published, will deal with food needs of man and animals.

A canal parallel with the Suez Canal linking the Mediterranean with the Red Sea has been proposed, as a safeguard in case of damage or blockade befalling the Suez route.

Voices of 8,000 birds on Catalina Island bird farms were recorded for group and solo effects for use in a recent moving picture musical.

The 1940 census will list auto trailer occupants as residents—for census purposes only—wherever they happen to be, if they have no fixed residence.

Due to Confucian belief that the body was sacred, it was not until 1915 that medical dissection of the human body was attempted in the interior of China.

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MEDICINE

Sex Antagonism in Hormones Clue To Possible Cancer Foe

**Female Sex Hormones Cause Cancer in Animals;
Male Hormone Checks It; Chemicals Now To Be Tested**

BECAUSE of a suspected antagonism between male and female sex hormones regarding their cancer-causing properties, scientists have a new clue to what may be an anti-cancer chemical. The clue appears in an account of sex hormone investigations by Drs. J. R. Murlin, C. D. Kochakian, C. L. Spurr and R. A. Harvey of the University of Rochester. (*Science*, Sept. 22)

Various chemicals are soon to be tested for anti-cancer-producing properties, it is stated. These are probably not the known sex hormones but substances of similar chemical composition closely associated with the sex hormones. Whether or not these possibly anti-cancer chemicals will have any practical value in the fight against human cancer cannot yet be determined. The work so far has been on laboratory animals.

Female sex gland grafts and female sex hormones, it had previously been found by other investigators, caused the development of breast tumors in male mice, although these animals do not

normally develop breast tumors as female mice do. This suggested a possible antagonism between the male and female sex hormones with regard to cancer-causing properties which the University of Rochester scientists set out to investigate.

The male sex hormones, they found, "quite definitely inhibited (checked) the growth of the Brown-Pearce tumor" when this rabbit tumor was implanted in the animals. Some of the sex hormones also checked the growth of secondary tumors. These were hormone extracts from kidney excretions. Some pure hormone preparations, however, had no effect on either the growth of primary tumors or the development of secondary ones. This suggested that the hormone extracts contained substances other than the hormones which were responsible for checking the tumor growths. These substances have been separated from the hormones in the extracts and will be tested for their effects on cancer growth.

Science News Letter, October 7, 1939



OLDER THAN PANAMA

This old map shows, marked with an "r," America's first canal linking the Atlantic and Pacific, the Canal of Rospadura.

ing this canal is reported by the WPA historical records survey. Premilas F. Becnel, going over historic documents at Tulane University's Department of Middle American Research, unearthed this map, and realized its historic value. Continuing the search for more records of the Canal of Rospadura, as it was called, Mr. Becnel and a research student assistant have since located eight more maps showing the canal, and have traced its history.

The canal joined the San Juan River, which has an outlet on the Pacific, with a tributary of the Atrato River, which flows into the Gulf of Darien on the Atlantic side.

America's first ocean-to-ocean canal was dug, not for trade, but to settle a boundary argument between two families.

It was a shallow ditch, but during periods of high water Indians began to find the route handy in their canoes, thus unknowingly becoming first to take a short cut water route from one coast of America to the other. Cacao beans for Indians and white people were the early commercial cargoes that crossed the continent via this canal.

A Philadelphia engineer in 1852 found

GEOGRAPHY

Panama Canal Not First To Link American Oceans

IF PLANS for the Nicaraguan Canal, now revived, actually go to the digging stage, America will have achieved three—yes, three—out of four much-talked-of canals for linking the Atlantic and Pacific.

The four main canal routes which have at various times been considered by American engineers are:

First, the Panama route, now a 25-year-old reality.

Second, the route across southern Nicaragua, linking in the San Juan River and Lake Nicaragua. Planned as far back as 1825, this project is now being studied in conference by the Nicaraguan government and its neighbor Costa Rica, while American engineers

are again at the task of surveying the ground problems.

Third, the route across the narrowest part of Mexico, the Isthmus of Tehuantepec. A canal at this point, so much nearer the States than Panama, would bring Honolulu more than 1,200 miles closer to New York.

Fourth, a route farther south than any of these, across Colombia near its Panama border. This route actually has once been dug—dug and practically forgotten. It was America's first achievement in joining the oceans, undertaken with no thought of this significance, by a Spanish monk, Antonio de Cereso, and Indian laborers back in 1788.

Recent discovery of an old map show-

the Raspadura ravine route so filled up that even his light-draft canoe had to be dragged through a canyon on dry land before he could get to the San Juan River and the Pacific.

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PSYCHOLOGY

Roads Should Be Planned With Normal Driver in Mind

A GREAT deal of attention has been given lately to the accident-prone driver. Officials have worried over how to remove from the highway those motorists who seemed to act as catalyst in producing dangerous crashes.

Perhaps too much emphasis has been placed on the fact that certain individuals figure in more than their share of highway tragedies. For, after all, the great bulk of accidents do happen to the "normal" driver who has never before had a serious mishap and may never have another.

A recent survey of accidents in Connecticut made from Highway Research Board statistics by Dr. T. W. Forbes of Yale's Bureau for Street Traffic Research indicates that if all the drivers who had more than two accidents in a period of three years were to have been taken from the highway, the total accident record for the next three years would have been reduced by less than four per cent.

Highway engineers, Dr. Forbes urges, should devote their principal attention to the problems of the normal driver—the driver who is ordinarily cautious and ordinarily skillful.

Highways should be so planned that the normal driver can operate on them safely with his ordinary habits of driving.

"Capabilities which must be considered in connection with traffic design and control include such items as driver judgments in overtaking and passing cars so as to allow the driver sufficient time and distance for this maneuver," Dr. Forbes said in a report to the *Journal of General Psychology*; "the speed of driver reactions in connection with the placement of warning signs and the design of entrances and exits to high speed highways; visual characteristics of the driver in order to design signs which will be easily legible and which will give the driver time enough to act in the appropriate fashion; color and attention values in connection with the design and placement of traffic signs and signals; and many other capacities which play a part in certain phases of the operation of the motor vehicle upon the highway."

Science News Letter, October 7, 1939

PSYCHOLOGY

Europe Darkened and Silent Is Risking Mental Health

Surveying Mental Casualties of World War, Experts Urged Music, Bright Uniforms, Keeping Friends Near

DARKENED Europe, marching grimly into war without song, may be a Europe striding toward mental illness. Drab uniforms, darkened theaters, and an ever-present reminder of asphyxiation slung from the shoulders are not good for mental health.

In the World War, nearly 50% of all casualties were victims not of bombs and shrapnel but of the collapse of their mental defenses. This was revealed when at the close of the war a committee of French and American psychiatrists made a study of the psychoneuroses of war for the International Congress on Military Medicine that met in The Hague in 1931.

Some of these cases may be prevented in the present conflict by better selection methods—by excluding the emotionally unstable, the men already displaying mental disease in its early stages, borderline cases. The United States has already set up units throughout the country for detailed study of recruits by psychiatric experts. It is probable that other nations have also given consideration to this problem of rejecting the mentally unfit.

But war brings terrific strains for the mind of the normal person, be he combatant or stay-at-home. And the present conflict has been called a "war of nerves."

The separation of families is one of the strains of war. During the World War men were deliberately scattered so that if defeat wiped out a unit, the blow would not fall with concentrated force on one community of home folks.

This was a mistake, one of the experts found. The comfort of being with other soldiers from home more than overbalanced the effect of concentrated casualties on the civilian population, it was concluded. Psychiatrists now are wondering about the effects of breaking up of city families on the mothers and children. In peace time, psychiatrists do not recommend that parents send children away to spare them hardships; family affection fills a real need in the child's life and should be strengthened rather than weakened by times of trial.

Banishment of music, movies, dances, would not be approved by the experts who surveyed the psychic wreckage of the World War. They even recommended that the camouflage of khaki be sacrificed for the mental lift of bright colors and distinguishing emblems.

"The use of attractive uniforms with all their emoluments, music and all the trappings that go into a martial setting, have a beneficial effect upon the morale of military personnel," declared Dr. W. F. Lorenz, Professor of Neuropsychiatry at the University of Wisconsin, in his contribution to the official report.

"The drab, ill-fitting unattractive uniform may be highly effective to hide from the enemy, but it falls far short of building up any esprit de corps. Even though the bright colors might make troops more visible, such a tactical disadvantage would be more than offset by the soldier's better frame of mind.

"One would therefore advocate as good mental hygiene in military medicine that at least divisions, or better regiments, be distinctly and brightly uniformed, thus promoting the herd instinct and serving to prevent the psychoneuroses of war."

Science News Letter, October 7, 1939

PHYSICS

Developing Device to Test New Finishes of Fabrics

LATEST National Bureau of Standards project is to devise a mechanical method of measuring the "you-love-to-touch" qualities of cloth—the softness and harshness of textile materials. Textile industry, acting through the American Society for Testing Materials, is co-operating. New types of finishes making fabrics spot-proof, mildew-proof, crease-proof, changing glossy appearance to dull and dull to glossy have brought need of a scientific method of comparing finishes more accurate than just feeling them.

Science News Letter, October 7, 1939



SUBSTITUTE HAND

A new method of electroforming made it possible to make a sponge rubber hand for a young girl who had lost her own in an automobile accident. The girl had a sculptor friend who prepared a reproduction of the missing hand in plaster of paris, correct in every detail. This was used as a pattern to electroform an iron mold in which the light and useful sponge rubber hand could be made. The artificial hand was tinted to match the skin.

MILITARY SCIENCE

Armor May Become Fashion Even Among Civil Population

Bullet-Proof Suits Would Cause Loss of Agility But Offer Protection Unless One Ran Into Electricity

WEARING of armor like that of knights of old, only proof against modern bullets and shell fragments, is likely to come into fashion again, even among the civil population, predicts Stephen V. Grancsay, curator of arms and armor in the Metropolitan Museum of Art.

Armored men have already been reported as having been seen repairing the barbed wire in front of German entrenchments on the western front.

"Armor wearing is not ideal," Mr. Grancsay stated to Science Service. "However, a soldier necessarily has to bear great discomforts. I am sure that with the light alloys developed today armor will be used extensively, even by the civilians as a protection against flying debris. Armor would be effective against

the shells falling from anti-aircraft guns. As for civilians wearing armor—some people are reckless and others are cautious, and I should think that it would depend upon their natures whether they would go in lightly or strongly for armor."

Among the drawbacks of armor-wearing mentioned by Mr. Grancsay are loss of agility by the infantryman (a suit of medieval plate armor weighed 50 pounds!), and the terrific consequences to an armored man of running into an electrically charged wire entanglement.

However, in a war of position, such as seems to be developing on the western front, armor might be a very considerable advantage to machine gunners, anti-tank gun crews, and other troops not required to move fast, jump shell holes, etc.

METALLURGY

Iron Now Electroplated With New Industrial Uses

IRON is joining the procession of metals that can be electroplated with great industrial effectiveness.

Out of the laboratory has come a new method of producing molds and dies by the electroforming of iron, making possible the shaping of rubber tires at greater speed and less cost, duplication of rare carved ivory pieces in glass or plastics, stampers for punching out metal machine parts by the thousands, fashioning of objects in clay, silver, and other materials—even the reproduction of portraits in plaques of plastics and other materials by a photographic relief process.

The Ekko process, a phonetic spelling of "echo" suggestive of the duplications it makes possible, is an achievement of United States Rubber Co. scientists, patents pending. Because of perfect rendition of intricate details and considerable money savings, the process promises to have wide usage.

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Every soldier in all armies these days wears a helmet, and if a helmet is good protection, Mr. Grancsay reasons, why should not other body armor be equally good protection?

Mr. Grancsay has the backing of no less an authority than General Pershing, whom he quotes: "Effort should be continued towards the development of a satisfactory form of personal armor."

Two and a half years ago, on April 7, 1937, Mr. Grancsay predicted the return of body armor, in a Science Service radio broadcast.

Armor has never been entirely abandoned. During the World War, some of the German machine gunners were equipped with breastplates. The heavy French cavalry had only just abandoned the wearing of their shining steel cuirasses, which were counted on to turn swords and lances in a charge, though it was known they would not stop bullets. And the wearing of bullet-proof vests, which are armor even if not made of metal, is a commonplace among dictators, gangsters and other men who have reason to fear attempts at assassination.

Science News Letter, October 7, 1939

The eared seal has only traces of outer ears; and other seals have none—merely holes leading into inner ear passages.

PSYCHOLOGY

Sweets For Flyers May Come From New Research

SWEET emergency rations may be carried by pilots of bombing planes to counteract difficulty in reading their brightly lighted instruments, when cruising at 11,000 to 20,000 feet altitude and peering at blacked-out darkness.

This may be concluded from experiments reported by Dr. Ross A. McFarland to the American Psychological Association at Stanford University.

Adaptation of the eye to dark and light is more seriously affected by low-

ered oxygen pressure than it is by a dose of powerful insulin, Dr. McFarland and Dr. W. H. Forbes found at Harvard University. And both can be counteracted by a dose of glucose.

The eye fails to adapt normally because the amount of oxygen in the nervous tissue is decreased. The trouble is in the nerve elements of the retina and central nervous system, not with the photosensitive substances in the eye.

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MILITARY SCIENCE

Newest American Arms To Be Shown At Aberdeen Oct. 12

NEWEST weapons for the defense of America will be put through their paces on Oct. 12 at the Army Proving Ground at Aberdeen, Md. The audience will consist of members of the Army Ordnance Association, representatives of the press and newsreels, and other persons receiving permits from the War Department.

In contrast to the hush-hush policy of most foreign nations, the Army is putting its trump cards face up on the table. Only weapons still in the course of development, and not ready for production and use, are being withheld from the demonstrations. Weapons ranging all the way from the infantryman's rifle to the massive 14-inch coast defense rifles mounted on railway cars will be shown, as well as recent models of tanks, searchlights, etc.

Particular interest will center on the new Garand semi-automatic rifle, which can be discharged as fast as the trigger can be pulled, giving the infantryman an almost machine-gun-like rate of fire. None of the nations now fighting or mobilized in Europe and Asia has a weapon like this.

New also is the whippet-like 37-mm. anti-tank gun, which can drive a one-pound armor-piercing projectile like a small thunderbolt through any tank that gets within a thousand yards of it. It has a sister weapon in the 37-mm. auto-

matic anti-aircraft cannon, which works like an outsize machine-gun, sending a close-spaced stream of high-explosive shells high into the air to cancel the schedules of would-be raiding bombers.

Big brother in the field artillery family is the new 155-mm. (6.1-inch) heavy rifle, which can hurl a 100-pound shell to an extreme range of 25,000 yards with deadly accuracy. This type of weapon is designed for action against opposing batteries, as well as to tear up roads and search out supply trains, ammunition dumps, enemy headquarters, etc., far behind the lines.

Science News Letter, October 7, 1939

PHYSICS

Blood Drops Are Clues In Medico-Legal Research

BLOOD will tell. Not a detective story, although it will undoubtedly be used in many, is the clever medico-legal research in Paris on splattering of blood. High speed movies helped the experiments.

The height of the fall of drop of blood can be told from its appearance. From a very low height, to a flat surface, the stain is round. From a considerable height, points appear on the periphery. Blood stains lengthen out when they hit a slanting surface, splashing signs of angle of the object hit and height of fall. Other clues read from blood drops: Whether from wound or coughed up in the dying moments, whether from a corpse or living person, whether the blood is old or recently spilled.

Science News Letter, October 7, 1939



MEASURING MOVEMENT

The little lamps strapped to legs, arms and head of the cyclist trace on photograph film the path of every movement he makes. This research is being done in the cabinet of bio-mechanics of the Leningrad Institute of Physical Culture and was photographed by Sovfoto.

PSYCHOLOGY

Peace Societies Ineffective; Patriotic Societies Powerful

Survey By Psychologist Reveals That Policies of Patriotic Organizations Are Those Being Followed

AMERICANS seem pretty generally to share a fatalistic attitude that "We don't want war, but we'll be dragged into it."

An explanation for this paradox may be found in a recent study of the programs and effectiveness of peace societies conducted by Dr. Ralph H. Gundlach, University of Washington psychologist.

Despite tremendous membership, peace societies have, he said, as little chance of effectiveness as the prominent and conscientious wife who seriously wishes to rid the community of poverty, and can only go so far as to distribute Christmas baskets.

With smaller membership but with representation from powerful economic groups are the "patriotic" organizations whose policies are diametrically opposed to those of the "peace" societies, and who are determined to "sell business to the American public as a patriotic duty."

The peace societies Dr. Gundlach found to include most of the religious, educational, women's and educational groups. "One congress of such organizations claims to represent over 60,000,000 persons. In contrast is the rather slender membership of the patriotic societies, lead by three major groups, the American Legion, the Navy League and the D.A.R."

On eight scores, the peace societies are opposed to the patriotic societies in this matter of peace and war, the survey revealed.

"In practically every instance," Dr. Gundlach declared, "the actual policy which is being carried out in the United States today is the policy advocated by several of the patriotic societies."

Here is the comparison between patriotic society policy and the U. S. policy as made by Dr. Gundlach:

1. The patriotic societies support increased armaments. Our budgets for army, navy, coast defense and aviation are the largest in all history.

2. The patriotic societies advocate military training in the school. The number of schools offering training and the number of students participating has greatly increased.

3. The patriotic societies advocate the conscription of men for soldiers and for work, and the plans for M-Day have already been drawn up in minute detail.

4. The patriotic societies oppose socialization of the armaments industry and favor government subsidy. Congress has appropriated millions for "educational" contracts; the Government is forbidden to build but a small per cent of battleships in public yards despite lower costs; the airplane industry is aided by Government contracts for planes and mail subsidies.

5. The patriotic societies frowned on membership in the League of Nations, and we remained out.

6. The patriotic societies urge aggressive foreign trade protected by the armed forces. Our marines and navy carefully protect our industrialists' trade and the investments of the wealthy in Mexico, the Caribbeans, the Orient, South America, in the world.

7. The patriotic societies oppose radicalism, and in carrying this out, they oppose extension of the rights of labor and favor restriction of immigration. A number of bills have been in Congress designed to harass the alien, and the United States has not been permitted to offer a haven for a few thousand refugee children.

Why are the patriotic societies so much more effective than the peace societies? Dr. Gundlach offers this answer:

"The main difference, I think, is to be found in this: the peace societies are groups concerned with remote ideals, while the patriotic societies are carrying out a program of economic immediate benefit to their leading members.

"The peace societies are in a sense, not mass organizations with a push from the bottom, but top organizations built around a few leaders who are either churchmen or liberal intellectuals. Their aim is to get a mass following through education and a feeling of moral responsibility."

The membership of peace societies, he found, is mostly of "morally-minded middle class." Many are women church members, but their husbands' "week-day

morality more than counter-balances whatever pressure they may exert as peace advocates."

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ARCHAEOLOGY

Priest Amid Sacred Birds Found in City of Dead

EXPLORING great underground galleries in the old Egyptian city of Hermopolis, modern Egyptians have come upon a high priest who chose to be buried among sacred birds and beasts.

Hermopolis has proved to be a dual city, above and beneath ground, and the dim subterranean streets and galleries are an eerie place, ranged with remains of dead ibises and baboons.

The thousands of ibises in mummified ranks and numerous baboons testify to power and popularity of the Egyptian god Thoth. Private citizens all over Egypt apparently sent mummified ibises to show their devotion to this god. Pilgrims at the shrine could pay for a bird to be sacrificed and mummified during days of ceremonial preparation.

Hermopolis was the center of this curious cult, because it was the city sacred to Thoth, and the central headquarters for his temples and priests. To ancient Egypt, Thoth was a god who had lived 3,000 years, and written 36,000 books. He was credited with the brain work of giving early Egypt its laws, formulae to guide the dead, its lore of magic and its science. Adding another ibis in a jar to the host of them in Thoth's realm was a good deed calling the donor to the attention of the creator patron for art and magic.

Dr. Sami Gabra, archaeologist of the Egyptian University, has been exploring Thoth's underground realm for nine years. This year he has had the fortune to dig his way into sand-barred corridors that discouraged ancient robbers, and so he has found some entirely undisturbed regions of the place, including the resting place of the high priest himself.

The birds that the priest venerated in life seem to guard him in death. The whole corridor throngs with jars containing the bird mummies sealed with linen. And on top ride 15 large wooden ibises, gilded, alertly watching the entrance through which no one ever came—until now—through 2,500 years.

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Yellowstone National Park has six broods of the rare trumpeter swans this season, with a total of 23 cygnets.

RADIO

Submarines Can Radio If They Are Not Very Deep

RADIO messages can be sent from a submerged or sunken submarine, but only if it is fairly close to the surface, states Dr. J. Barton Hoag, of the University of Chicago. (*Science*, Sept. 22)

Dr. Hoag made careful physical examinations of radio waves sent out from a transmitting apparatus submerged in Lake Michigan, and found that while the waves could get through the water they lost most of their power, through absorption, within a very few feet. Sea water has much greater absorbing power for radio waves than fresh water has.

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AGRICULTURE

Coffee Tree Disease Attacks In Hitherto Unknown Way

COFFEE plantations in Dutch Guiana, and possibly elsewhere in northern South America and onward as far as Guatemala in Central America, are suffering severely from the attacks of a deadly wilt disease. Losses on a single plantation have amounted to as many as half the trees. Wood from the dead trees has served as boiler fuel for three years—a burning tragedy.

Prof. Gerold Stahel, Swiss-born plant pathologist who is director of the Surinam Experiment Station at Paramaribo, has found the parasitic organism responsible for the disease. Important as his discovery is from the practical point of view, for the possible eventual salvation of the coffee industry, it has an even greater importance from the standpoint of basic science, for it has disclosed a hitherto unknown path along which harmful microorganisms can travel in plants.

The organism that causes the deadly coffee wilt is a one-celled animal belonging to the group known as the ciliates. It bears the zoological name *Phytomonas leptosporum*.

The important thing about Prof. Stahel's discovery is that this minute animal swarms in that part of the tree's inner bark known as the phloem, and specifically in certain elongated sap-conveying cells known as the sieve-tubes. It is believed that these sieve-tubes carry important parts of the nutrition of plants. The innumerable parasites choke these tubes and thus kill the coffee trees.

Parasitic protozoa have previously been discovered circulating in tubes or vessels in plants. But these were the latex tubes of plants like the milkweed, which have no cross walls to interfere with travel. Sieve-tubes have cross walls, perforated with openings so tiny that it was thought impossible for anything living to get through them. Yet Prof. Stahel's microscopic animals do manage to wriggle through.

This discovery of a new route of infection may possibly open the way for the solution of other plant disease problems that have hitherto kept plant pathologists at bay.

Science News Letter, October 7, 1939

GENERAL SCIENCE

Languages Must Be Kept In Interest of Science

CORNELL'S announcement that a course in Russian language and literature is being established, with help of a Rockefeller Foundation grant, emphasizes that science and scholarship are truly international and language is a means of communication and not necessarily linked with ethics or ideologies.

Not liking communism is no reason for ostracizing the main language of the Soviets which was also the language of the Czars.

There is a generation in America, the one that went to high school and college during the World War, that is less literate in German than it should be, because German, along with sauerkraut and dachshunds, lost favor when we were fighting the Kaiser.

Defenses are already being erected by language teachers and others to prevent such linguistic suicide tactics under present conditions.

As for Russian here's a story. Dr. C. E. K. Mees, director of the famous Eastman Kodak research laboratories, a few years ago became convinced that the Soviet scientists were going to do important research and development in photography that would be locked up in their own technical publications away from all who could not read Russian. So he learned the difficult language, and now Dr. Mees, although head of a large research staff, personally follows the Soviet literature making available to his staff translations of articles bearing upon work in progress. Here's hoping the Cornell classes recognize this importance of Russian to science, preparing to tap Soviet science as well as Russian literature.

Science News Letter, October 7, 1939

IN SCIENCE

ASTRONOMY

London Black-Outs Allow Astronomers To See Stars

LONDON'S black-outs, suffered by its citizens as a wartime necessity, are proving a boon to astronomers of the Greenwich Observatory.

Absence of lights which severely handicap star studies of observatories located in or near large cities, is enabling better research work at the world-famous institution from which the earth's meridians of longitude are measured.

Not for 20 years has the London sky been so clear, William MacIntyre, secretary of the British Astronomical Association, said. The sky is also freer of dust than usual, due possibly to a decrease in fuel consumption in London during the war. Greenwich observatory astronomers have complained for years that London lights interfere with work at the institution.

Science News Letter, October 7, 1939

GEOLOGY

Metal Declared To Exist Beneath Meteor Crater

CONFIDENCE that metal exists beneath famous meteor crater in Arizona was expressed by D. Moreau Barringer, Jr., long associated with the mining company that owns this site, commenting on recent reports that indicated that all the metal contained in the meteorite spattered outside when it hit, (*SNL*, Sept. 9, 1939 p. 169).

"The last three drill holes which were sunk all encountered quantities of meteoric material at depths of around 500 to 700 feet below the bottom of the crater," said Mr. Barringer. "Each of the three holes was stopped by 'boulders' of meteoric material enclosed in a matrix of crushed sandstone. Since the largest bit that we were using only had a diameter of 6 3/8 inches, we were unable to penetrate the main mass of the fragments. However, the holes served to corroborate with surprising exactness both the geological deductions and the results of the geophysical surveys." (*SNL*, Feb. 26, 1938, p. 134).

Science News Letter, October 7, 1939

CE FIELDS

MILITARY SCIENCE

New German Machine Gun Uses Gases To Speed Firing

BITISH military authorities are showing keen interest in a new type of light-weight machine gun of German design which utilizes explosive gases to attain firing speeds of 1,000 rounds a minute with muzzle velocities of 2,460 feet per second.

The new weapon fires 7.9 mm. bullets and is unique among gas-operated machine guns because it uses the gases only after the bullet has passed the gun's muzzle. In this way there is no decrease in muzzle velocity as there is in the usual type, which taps the gases from within the barrel at a point near the muzzle.

Specially bladed channels conduct the gases to a piston that operates the breach. The barrel is air cooled and is changed after 200 to 250 rounds, depending on the rate of fire. The entire gun weighs only 20 pounds.

Science News Letter, October 7, 1939

RADIO

American "Hams" Unhappy Over Loss of Foreign Pals

AMERICAN "hams," in the radio not the theatrical sense of the word, are unhappy about the black-out of ether waves that they merrily used to catch from fellow DXers in countries at war.

Radio amateurs who have meant so much to the progress of wireless from its early days, are talking gently these days, keeping the radio waves as neutral as possible.

American Radio Relay League officials estimate that the war is affecting 60% of the membership in the International Amateur Radio Union.

In half the countries that were "worked" by American amateurs, amateur radio is suspended for the duration. About 70% of the world's amateurs have abruptly disappeared from the air, their dots and dashes and their voices echoing over oceans and continents stilled. It used to be commonplace for Americans to chat across the Atlantic and with the ends of the earth—to

swap stories and news and technical details of radio—but all that is forbidden in areas to which grim war has come.

Fearful of limitations on amateur radio in this country, here is what the amateur journal QST is advising radio amateurs in the country: 1. Keep all international contacts strictly to experiments and chit-chat. 2. Relay no intelligence of any sort from one country to another. 3. Don't discuss, even when two Americans are communicating, happenings that may have military significance, because belligerents have radio ears. 4. Keep private feelings and unneutral thoughts off the air.

Science News Letter, October 7, 1939

MEDICINE

R. A. F. Medical Officers Instructed on Sulfanilamide

ALL medical officers of the Royal Air Force have been instructed that no one should be allowed to fly or drive an automobile while taking sulfanilamide or related chemical remedies. Reason: Derivatives of these chemicals, by producing methemoglobin or sulfhemoglobin, may interfere with oxygen exchange of the blood and so prove a danger by reducing oxygen supply to the pilot's or driver's brain. (*Journal, American Medical Association*, Sept. 23)

Peacetime experience shows that a full dose of one of these sulfanilamide derivatives taken shortly before flying lowers an aviator's "ceiling" by about 5,000 feet. Dr. E. P. Mackie, medical advisor of Imperial Airways, saw a pilot who was suffering from severe oxygen lack as a result of flying at only 13,000 feet. Investigation showed he had been taking full doses of sulfanilamide for tonsillitis.

Similar cases have been observed in America and Germany.

Science News Letter, October 7, 1939

RADIO

New Technical Term "Vu" Describes Broadcast Volume

ADD to the vocabulary of technical terms the word "vu" being used by radio engineers as a unit for expressing the volume of a radio broadcast. The Bell System, the Columbia Broadcasting System and the National Broadcasting Company have a new instrument for indicating standard volume, useful, no doubt, on swing bands, symphonies, dictators, presidents, comedians and senators alike.

Science News Letter, October 7, 1939

ANTHROPOLOGY

To Survey America's Hair With New Measuring Device

A SURVEY throughout the country of the hair of Mr., Mrs., Miss and Master America is to be attempted for the first time by anthropologists.

The popular wisecrack that gentlemen may prefer blondes but they marry brunettes will at last be put to statistical test. Also, whether a fine or coarse head of hair is more apt to end in baldness. And whether the season of birth influences the size of the hair, as some scientists think possible.

Undertaken by Dr. Clark Wissler of the American Museum of Natural History, for the serious and useful purpose of gathering data needed by science concerning hair conditions in the United States, the survey will include a cross-section of the population. The project is made possible by a new electrical precision measuring instrument developed by the Timken Roller Bearing Company, of Ohio, with which hair can be measured on a mass scale. Heretofore, measuring hair diameters has been a tedious process.

The machine's limits are 25/100,000 of an inch and 500/100,000 of an inch. A blonde child's hair, recently measured, was only 50/100,000 of an inch in diameter. Orientals' hair frequently is too coarse for the machine.

Science News Letter, October 7, 1939

ASTRONOMY

War-Time Daylight Saving Proposed For Britain

WITH approaching winter months bringing shorter days and English city life ending at dusk because of the war-time black-out, a daylight saving plan under which nine o'clock in the morning would coincide throughout the year approximately with dawn has been submitted by a Cardiff engineer to the Home Secretary.

Clocks would be advanced 50 minutes on Jan. 1; 25 minutes more on Feb. 1; 50 minutes, March 1; 50 minutes, April 1; and 60 minutes, May 1. No changes would be made in June and July. On Aug. 1 clocks would be turned back 20 minutes; on Sept. 1, 40 minutes; Oct. 1, 50 minutes; Nov. 1, 50 minutes; and Dec. 1, 25 minutes.

The scheme, its backers, who include a prominent industrial council, insist, would save fuel as well as provide more daylight leisure hours.

Science News Letter, October 7, 1939

MILITARY SCIENCE

Falling Death

Bombs Over Modern Cities Impend More Dreadfully Than Sword in Ancient Fable of Damocles—All Are Menaced

By DR. FRANK THONE

THE BOMB has taken the place of the fabled sword of Damocles, in the modern tale of the world's worst fears. It is a millionfold worse than the keen blade hung by a single hair over the head of the feasting king. It is not hung even by a hair: it rides wings on the thin uncertain air itself. Nor is its possibility of harm confined to the luckless one just beneath. When it falls it converts itself into ten thousand weapons that strike with lethal impartiality in all directions. Not Damocles alone but all that are at the feast, and the scullion in the kitchen, the cellarer among the winecasks, the groom in the stables, share the peril now. Death has grown democratic in this age.

For all the terror in which they justly hold bombs, most people know relatively little about them. They are narrowly egg-shaped objects, with fins or tails to guide them straight; they are filled with high explosive and something to make it go off. That is about the total picture, in the average person's mind.

It is a fairly accurate outline, too, so far as it goes. Details fill in the sketch, but they do not extend it greatly. But there are some things about bombs that are worth looking at a bit more closely. Since the world has to be unwilling neighbor to these disagreeable customers, one might as well gain what profit one can from the forced acquaintance.

Streamlined, With Fins

A bomb is essentially a case, more or less streamlined, filled with high explosive or other militarily useful load and fitted with a detonating fuse. It usually has tail-fins, to keep it nose-down as it drops.

The fuse is not what we have become accustomed to thinking of as a fuse, from our childhood experience with firecrackers and skyrocketers. It is not a sputtering, powder-filled wick, to burn down until it reaches the explosive charge and touch it off with a bang.

To most of us, it would seem more appropriate to describe it as a trigger mechanism, for it consists of mechanical means for striking against an explosive

cap, like the primer in the base of a rifle cartridge or shotgun shell, only bigger. That fulminate cap explodes a small charge packed around it, which in turn detonates the main mass that fills the bomb. The whole thing is an adaptation of the mechanical fuse of an artillery shell, which it rather closely resembles.

The simplest form of a bomb fuse is a rod with its outer end projecting a little beyond the pointed nose of the bomb and its inner end resting against the cap. When the bomb strikes, the rod is pushed in, and that's all there's to it. This simple form, however, is relatively little used.

More usual is a fuse in which a small cylindrical weight can slide within a hollow cylinder. As the bomb falls, the weight stays back toward the tail end. When the bomb strikes, the weight is carried forward by its inertia—just as you feel yourself trying to “go on through the floor” when an elevator stops its descent with too much of a jerk. At the nose end, the weight finds the detonating cap waiting for it. Many bombs, especially the big ones, have two such internal fuses, one each in nose and tail, so that if one fails the other makes sure it explodes.

Two Kinds of Fuses

Some fuses are built to act instantly, as soon as the nose of the bomb touches something solid. They are designed for effect at the ground surface, among troops in the open or in uncovered trenches. Other fuses, called the “delay action” type, hold up the explosion for a split second, until the bomb can penetrate through the roof of a dugout or a house or the deck of a warship, and then go off to wreak maximum destruction inside.

Bombs themselves are divided into four main classes, known respectively as demolition, fragmentation, incendiary and chemical. The first two classes are filled with high explosive; the last two contain mainly chemicals and have only enough explosive charge to break them open and scatter their contents.

Demolition bombs are what the world's cities fear most. They are the

missiles that have laid waste great sections of cities in Spain's recently ended civil war, that have wrought wholesale destruction in invaded China. They are what may ruin London or Berlin even this very night.

Demolition bombs range in weight from a few pounds, barely enough to wreck a garage, to two-ton monsters containing 1,000 pounds of TNT, sufficient to disable a battleship with one blow—provided they hit it squarely and in the right spot. They may be very thin-shelled, to carry the largest proportion possible of their weight as explosive, or they may be thicker shelled “penetration bombs” with smaller charges and delay-action fuses, designed for breaking and entering before they do their deadly work.

Undesirable Explosives

Explosives used in bombs are usually TNT, guncotton or other materials that are very powerful yet relatively safe to handle. There are plenty of extremely high explosives, like nitroglycerin and various combinations of liquid oxygen and carbon, phosphorus, or other substances, that are more powerful than TNT, but military men don't like to monkey with them, because they are “tricky”—likely to be set off by a slight jar, or even for no apparent cause at all, so that they are almost as dangerous to your own side as to the enemy.

In 1898 the U. S. Navy had a special gunboat, the “Vesuvius,” armed with big air guns for firing bombs loaded with explosive gelatin—a mixture of guncotton and nitroglycerin. The “Vesuvius” wasn't popular with the rest of the fleet. They didn't like her cargo, and preferred to have her stay away off, all by herself.

For this reason, aviation ordnance men declined to become excited over reports of a “secret” German explosive involving the use of liquid oxygen, alleged to have been used in the bombing of Barcelona. Even though their business may be devastation, they prefer not to risk devastating their own airdromes and ammunition dumps. Destructive to the enemy, safe to yourself, is the ideal of the orthodox bomber as it is of all soldiers.

Demolition bombs include the biggest built, but their brother high-explosive missiles, the fragmentation bombs, do

not rise above the middleweight class. They are built with moderately thick walls, designed to break into small pieces when they explode and to act as a shower of missiles against troops caught on the road or elsewhere in the open. It is unlikely that fragmentation bombs will be much used in attacks on cities. The objectives of such attacks will be arsenals, factories, dockyards, railway terminals, government buildings, and so on—material rather than human targets, calling for smashing with demolition bombs rather than killing with fragmentation weapons.

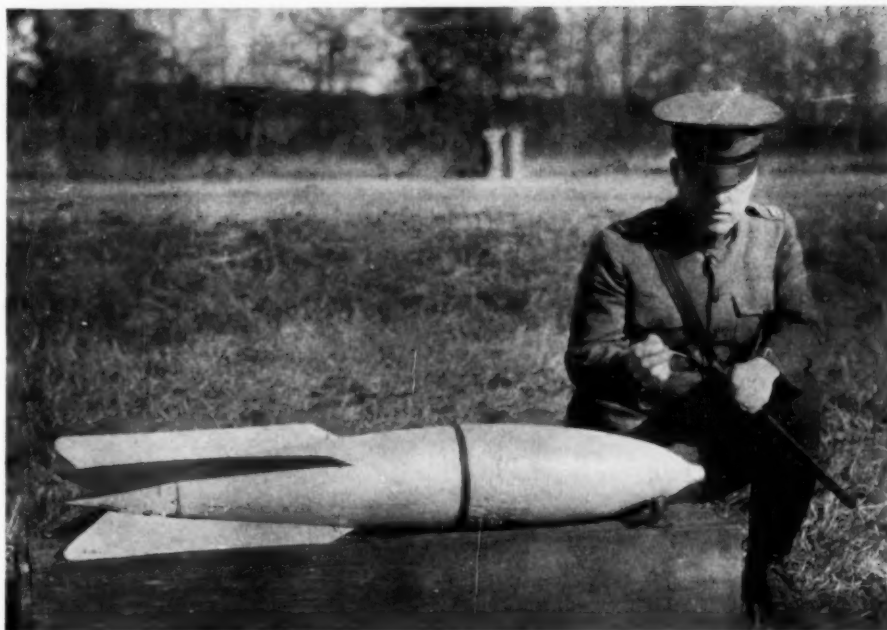
Cities do have good right and reason, however, to fear the third class of bombs, the incendiaries. These are designed to break through roofs and scatter their flaming contents inside the buildings. Incendiary bombs are usually quite small; they are the smallest of aerial weapons. It is better to start as many fires as possible than a few big ones: fire is the one weapon that increases itself instead of becoming spent. So incendiary bombs are mostly only a couple of pounds in weight, and are intended to be dropped in scores or hundreds.

Their effect is of course proportionate to the combustibility of the cities against which they would be used. Of all the nations, probably Japan has the cities most vulnerable to fire, the United States the least. European cities average about alike—pretty good kindling, under their roofs of slate and tile.

Thermit a Favorite

Various petroleum mixtures have been tried as incendiary bomb fillers, but ordnance men generally prefer solids to liquids, as being safer and less messy to handle. The well known industrial welding mixture, Thermit, is a favorite because of its stability and because of the terrifically hot flame it engenders when it is set off. The makers of incendiary bombs also like the highly inflammable chemical elements phosphorus and magnesium. A magnesium bomb built around a core of Thermit has something of a mode in European military circles just now, as being both light and hot.

The final class of bombs, the chemical bombs, are the center of hot dispute, and have been for years. Will they be useful against cities or not? The old scare-tales, of a single plane wiping out a city by dropping a single bomb of a super-poison-gas, have more or less subsided lately. Yet there is no denying the dread people have of gas. It might be said that even without the dropping of a single



ONLY A LITTLE ONE

Yet this small bomb can carry enough high explosive to demolish an ordinary house. Its bigger brothers, capacious enough for the officer to get inside their shells and stand up without crowding, might crush forts or full-sized ships with a single blow.

gas bomb, nations of Europe have done each other an immense amount of damage already, through the enforced distribution of gas masks to the civilian population and the equipping of bomb-proof shelters with gas-proofing and air-purifying devices—all at immense expense.

Despite the bitterness of the late civil war in Spain, the contending forces did not use gas against each other, neither have the ruthless Japanese used it in their attacks on crowded Chinese cities, nor the Germans over Warsaw. In all three of these defenseless lands gas would have had terrific effect on the civilian populations because of the utter lack of gas masks and the inadequacy of other protective measures. Why did the armies that gained control of the air—Japanese in China, Nationalists in Spain, Germans in Poland—spare the cities of their enemies this crowning horror when they laid on all the rest?

The answer remains an enigma in the dark clouds that overhang the world's sky at present. Perhaps not until a greater war parts these portentous curtains on the West, to let pass the flying hosts of the Winged Death, shall we be permitted to know.

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Science News Letter, October 7, 1939

PSYCHIATRY

World War Mental Cases Will Grow Until 1947

AMERICA is still paying for the World War in the most precious sort of coin—men's minds.

The number of World War soldiers who are patients in hospitals for mental disease is still going up and will continue to increase, it is estimated, for another eight years. In 1929, a decade after the war, 18,393 veterans were hospitalized for mental disease. Now, another decade later the number has gone up to 29,000. By 1947, it is estimated by the U. S. Veterans' Bureau, the peak will be 40,000.

This figure does not include a much larger number suffering from mental and nervous diseases, but who are kept out of hospitals lest they bog down into "hospitalosis."

The total number of World War veterans receiving compensation for neuropsychiatric disease on January 1, 1929, was 54,785.

Today, it is 89,119, of which 67,366 cases are directly traceable to the war.

What will it be in 1947 when the peak is reached? No man knows.

Science News Letter, October 7, 1939

To save bulk in transit, tin cans are sometimes shipped in collapsed form.

MEDICINE

High Frequency Currents New Aid in Cataract Removal

**Artificial Ripening Makes Removal Easier and
More Certain; Fever Treatments Found Successful**

ARTIFICIAL ripening of cataracts of the eye, making their removal easier and more certain, can be safely achieved with the aid of high frequency electric currents, Dr. Albert L. Brown of Cincinnati reported at the American Congress of Physical Therapy in New York City.

The heat due to resistance of the tissues to the high frequency currents apparently toughens the capsule, Dr. Brown explained, and if the capsule should rupture during the operation, the surgeon still has the advantage of extracting a mature cataract.

This new development promises to aid cataract removal, but Dr. Brown emphasized caution until the value of the procedure has been well established.

Fever Machine Better

PATIENTS with the mental disease, parietic dementia, tragic sequel of syphilis, stand a much better chance of recovery when given fever treatments by machine instead of by malaria germs.

The percentage of patients who get well is about 20% greater after a full treatment of the machine-induced fever combined with medicine than from malaria inoculation, Dr. A. E. Bennett, of Omaha, Nebr., reported. His figures were based on a review of five years' experience with the combined artificial fever and medical treatment at the University of Nebraska College of Medicine and Hastings, Nebr., State Hospital. Drs. Juul C. Nielsen of Hastings, A. H. Fechner of Lincoln and Paul T. Cash of Omaha assisted in the survey.

Until the Viennese physician, Wagner Jauregg, introduced the malaria treatment of this ailment, results of treating the disease were unsatisfactory, Dr. Bennett pointed out. The malaria treatment consists in injecting malaria germs, which produce a high fever that in many cases restores the patient to sanity. In the last 10 years, other methods of inducing high fever, such as the fever machines that make use of short radio waves, have been introduced.

The advantage of these methods over malaria-induced fever is that the fever can be controlled, whereas in malarial fever the patient may either not get enough or may get more than he can withstand. The latter is a danger particularly in the case of elderly patients or those with high blood pressure, or inflammation of the aorta, the big artery leading from the heart.

Arthritis Helped

THIS same kind of artificial fever treatment has been tried in patients suffering from atrophic arthritis. The treatment relieves but does not cure the arthritis, according to a report by Drs. Walter M. Solomon and Robert M. Stecher of Western Reserve University School of Medicine. Out of a group of 114 patients, most of whom had suffered with severe arthritis for many years, 75% noticed substantial relief from pain and stiffness lasting for from several days to several weeks. "Not a single patient seems to have been cured as a result of fever therapy nor was the disease substantially arrested," the Cleveland doctors reported. "As treatments were continued, the period of relief was prolonged so that the interval between treatments could be lengthened without deleterious effects."

Since the specific nature of the disease is not known, all doctors can do is to relieve symptoms of the arthritis, and this relief, Drs. Solomon and Stecher suggest, apparently can be given to a large proportion of patients by artificial fever treatments.

Science News Letter, October 7, 1939

PSYCHIATRY

Physicians Urged to Avoid Idea of "Legal Insanity"

AS ILLOGICAL as the dual standard for sex morality, and clung to as tenaciously, is the dual conception of insanity—legal insanity and medical insanity.

Medical men and legal experts alike

RADIO

Dr. Abel Wolman, of the Johns Hopkins University, chief engineer of the Maryland State Health Department, will be the guest scientist on "Adventures in Science" with Miss Jane Stafford, of Science Service, over the coast to coast network of the Columbia Broadcasting System, Monday, October 16, 4:30 p.m., EST, 3:30 CST, 2:30 MST, 1:30 PST. Listen in on your local station. Listen in each Monday.

deplore the "battle of experts" that too often occurs when a criminal claims innocence by reason of insanity. Yet again and again physicians are called upon to answer the question "Is he legally insane?"

Physicians know that a man cannot be insane medically and sane legally any more than he can have tuberculosis medically but be sound legally. Such a distinction recalls the Mikado's Poobah who had a different opinion for each of the many offices he held.

"Did the defendant know the nature and quality of the act and if he did, did he know that it was wrong?" This question is put over and over to physician witnesses. Physicians do not make diagnoses in such terms.

Physicians called into court as expert witnesses are urged to stick to their medicine and leave legal quibbles to lawyers, in a communication to the *American Journal of Orthopsychiatry* prepared by Dr. Gregory Zilboorg, New York psychiatrist.

"The question of responsibility we shall discard without qualms," he said. "This is not a medical question. As psychiatrists we have thoughts of our own on the subject; if insanity is a disease and the law itself considers insanity a disease, we think that man is no more responsible for his mental disease than for his gastric ulcer or brain tumor. But these views are of no import to the Court for, according to the law, not we doctors but the jury is the sole judge of the defendant's responsibility and if we are

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asked to answer questions as to responsibility, we, as doctors, should consider ourselves incompetent to answer. . . .

"Official psychiatry would perform the greatest service to law and medicine if it would decree that any expert psychiatric testimony admitting the existence of legal insanity and accepting the concept of legal responsibility is not in accordance with the basic tradition of the profession and automatically and officially disqualifies the expert in the eyes of the profession itself."

Science News Letter, October 7, 1939

MILITARY SCIENCE

Hitler's Danzig Threat May Have Meant Air Power

WHEN Hitler in his Danzig speech threatened the use of some means still unleashed against the Allies, interpreted by some commentators to mean that Germany may have some new horror up its scientific sleeves, he probably was referring only to his air power that has not come into use on a scale much larger than practiced in Spain and China.

There is extreme skepticism over the existence of any new weapon comparable to poison gas sprung upon French and British in the last World War by Germany. Poison gas is significantly unused so far in the present war. What are the possibilities?

Death rays, that perennial scare completely unconfirmed, are defeated by the good old inverse square law. The power of radiation varies and lessens with the square of the distance.

Germs are not practicable. They are too dangerous, since germs know no boundaries and there are too many natural germs anyway. Any terrible new gas is discounted by chemists; mustard gas is bad enough as it is.

Atomic energy? The original research was done in Germany, but physicists are extremely skeptical that it has been achieved.

Rockets, liquid oxygen bombs, other variations of explosive bombs are discounted.

Newest weapon in this war—radio propaganda, is one against which an immunity is being built up in human minds. Men are learning not to believe anything.

Science News Letter, October 7, 1939

Delaware is the first state to pass a law requiring dentists to spend a year as interns before practising as full-fledged professionals.

MEDICINE

Animal Glands Transplanted Give Hope In Addison's Disease

Death of Student During Examination Is Attributed To Taking "Pep Pills," A. M. A. Journal Learns

HOPE that gland transplants from either animals or other human beings can provide sufferers from dread Addison's disease with new and functioning adrenal cortex tissues, restoring them to relative health, is held out by an editorial in the *Journal of the American Medical Association*. (Sept. 9)

Caused by a deficiency in the secretion of the adrenal cortex, located above the kidney, Addison's disease has been combatted by injections of the hormone, and more recently by the implantation under the skin of pellets of the chemically synthesized hormone forming "artificial glands."

The fact that the Soviet physician, Dr. E. M. Auslender, has transplanted animal glands into 14 patients with more or less permanent results in mild cases and improvements lasting 5 to 6 months in severe cases, "seems to offer some hope of amelioration and to justify further trial," to the *A.M.A. Journal*.

Five years ago Drs. Edwin Beer and B. S. Oppenheimer of Mt. Sinai Hospital, New York, reported successful transplantation of a human gland with apparent complete recovery of the patient. The glands, whether human or animal, are placed in pockets under the skin.

The death of a Purdue University student last January while writing a college examination was attributed in part by the coroner, Dr. Lowell C. Smith, to use of "pep pills" made of amphetamine sulfate. In a report to the *A.M.A. Journal*, Dr. Smith tells how the student, identified as E. J. S., aged 25, collapsed in the class room after having taken pep pills before a series of examinations.

The use of amphetamine sulfate is "probably more common than one would think," Dr. Smith declared. Severe collapse following its use has been reported, but no fatalities have hitherto been reported in the medical literature.

Weather conditions, particularly rapid changes, which increase the severity of asthma produced experimentally in guinea pigs in German research, suggests to the *A.M.A. Journal* that closer study of the weather may help medical therapy.

A Chicago fireman who complained of asthma after every fire has added wood smoke to the list of asthma causes, Drs. Ben Z. Rappaport and Rudolph Hecht of Chicago, report.

Science News Letter, October 7, 1939

BOTANY

Rare Hawaiian Plant Flourishes in Volcano

See Front Cover

THE RARE silversword plant of the Hawaiian Islands, which grows mainly in the great extinct volcanic crater of Haleakala, in that section of Hawaii National Park located on the island of Maui, apparently is holding its own, according to John D. Coffman, of the National Park Service.

For many years it was feared that this plant was in danger of extermination as a result of destruction of its seeds by insects. National Park Service experts made studies of conditions and experimented in protecting the plant at vital periods. Apparently the results were successful, as a recent count showed a larger number of silverswords in the crater than had been reported for some time.

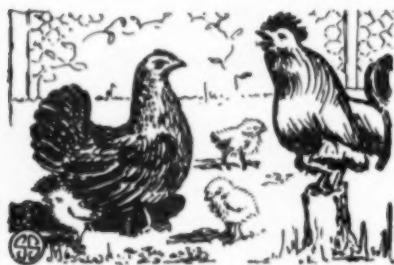
Recently the National Park Service, through Territorial Forester C. S. Judd of Honolulu, forwarded seeds of the silversword plant to Felixstowe, England, at the request of a British plant enthusiast.

Science News Letter, October 7, 1939

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Introducing Aggrids

GIVEN free choice of foods and equal access to all necessary articles of diet, some animals "show sense" in eating and thrive accordingly, while others fail to eat enough of the right things and grow up stunted and defective.

These results have been obtained in experiments with animals as diverse as chickens, rats and cattle, by Prof. W. Franklin Dove of the University of Maine, who sees in them implications of wider import, even for human society.

In his experiments with chickens and white rats, Prof. Dove offered the equivalent of the hearty, natural-food diet that built the mighty men of the Maine woods in pioneer days: whole-grain meal, milk, fish, eggs and ground bone. No vitamin extracts or concentrates were added; Prof. Dove considered the natural foods to contain plenty of these necessary health elements.

The important thing, however, was the free choice and equal access permitted to all animals in the experimental group. The ones that selected the right items in the best proportions greatly surpassed their companions in health and growth.

To individuals in a group thus show-

ing ability to take the right thing, whether food or other bio-social good, Prof. Dove applies a word of his own coining: aggrid. Aggridance is an important quality in natural leadership.

How to obtain the greatest social benefit from the wise choices made by aggridant types is the basic problem confronting organized humanity. Apologists for rugged individualism will claim theirs is the only true aggridant creed; collectivists both communist and fascist will hail their Supreme Aggrids who decisively settle everything for the good of everybody; democratic moderates will point out that the quality of aggridance is not strained and that its fullest development can be achieved only where free leadership attracts free followers, and where, moreover, the aggrid does not monopolize the means whereby others may profit by his example.

Science News Letter, October 7, 1939

PSYCHOLOGY

Hitler Propaganda Will Appear Pacifist in U. S.

By DR. KURT LEWIN

Professor of Child Psychology, University of Iowa

Dr. Lewin is one of the experts on propaganda requested by Science Service to comment on new methods that will probably be used in the present European War. (See also SNL, Sept. 9.) Dr. Lewin received many decorations for heroism in the German army during the World War, but was exiled from Germany under the Hitler regime. He has recently been conducting laboratory experiments on the effects of dictatorship, democracy, and other forms of leadership on the personality of children.

AS TO the state of mind of the people in Europe: compared with the start of the first World War, the greatest difference seems to me to be their disillusionment in regard to official war slogans.

I do not expect any immediate rebellion against war anywhere, but I doubt

whether the German people will be willing to fight longer than a year even in case of great initial successes of Hitler. They know very well from the last war this does not mean much.

As to the propaganda in this country: England and France may proceed rather cautiously, all propaganda will be of course under cover. I expect Hitler's propaganda to be very intensive and efficient. He will probably follow patterns similar to those he has used in Europe: namely, while taking one country he will try to strengthen with all means the isolationist tendencies in every other country.

To this end the pro-Hitler forces in this country will be directed to appear as ardent pacifist and honest isolationist.

The immediate objective is of course killing of a cash-and-carry legislation, in this way establishing a situation where, for instance, Japan could continue to buy war material in the United States but where England could not do so.

Science News Letter, October 7, 1939

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF MARCH 3, 1933

OF SCIENCE NEWS LETTER published weekly at Washington, D. C., for Oct. 1, 1939.
Washington
District of Columbia

Before me, a Notary Public in and for the District of Columbia aforesaid, personally appeared Watson Davis, who, having been duly sworn according to law, deposes and says that he is the Editor of the SCIENCE NEWS LETTER and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 637, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Editor, Watson Davis, 2101 Constitution Ave., Washington, D. C.

2. That the owner is:
Science Service, Inc., 2101 Constitution Ave., Washington, D. C., a non-profit corporation without stock, operating as the Institution for the Popularization of Science.

3. That the known bondholders, mortgagees, and other security holders owning or holding mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

Watson Davis,
Editor

Sworn to and subscribed before me this 25th day of September, 1939.

[SEAL]

Charles L. Wade
(My commission expires March 14, 1943)

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•First Glances at New Books

Additional Reviews
On Page 240

Embryology

THE STORY OF A BABY—Marie Hall Ets—*Viking Press*, 63 p., illustrated by author, \$2.50. "Mama, where do babies come from?" Embarrassing question No. 1 now has an answer in this picture book that mothers and fathers, scientists and children will love, and loving will understand. From "a life too small to be seen at all" to the baby's first smile, the growth of a baby is followed with correct, factual pictures and ungushing words. The idea for the book came to the author as she viewed the eager crush of people around exhibit of human embryos at Chicago's Century of Progress exhibition (remember Chicago had a world's fair in 1933 and 1934?). This book is one of its unforeseen benefits.

Science News Letter, October 7, 1939

Agriculture

SOUTHERN CROPS—Paul W. Chapman and Roy H. Thomas—*Turner E. Smith*, 558 p., \$2. A textbook specifically designed for use in Southern agricultural schools, embodying lessons of latest experiences in soil conservation, crop diversification, adaptation to existing and probable markets, etc. The objective is the education of "master farmers."

Science News Letter, October 7, 1939

Economics

EFFECTIVE RETAIL SELLING—Bernard F. Baker—*American Technical Society*, 287 p., \$2.25. Reading this guide to the mechanics and psychology of persuading the shopper to buy (and there are some 6,500,000 people in the USA engaged in retail store activities), one wishes that there were also effective hints for performing some of the other essential and perhaps routine tasks in this world.

Science News Letter, October 7, 1939

Geography

WALKING IN THE CLOUDS—Elmer C. Adams—*Arnold-Powers*, 86 p., \$1.25. An informal, easy-going account of a solitary hiker's trip over the Appalachian Trail through the Great Smokies.

Science News Letter, October 7, 1939

Ethnology

THE EYAK INDIANS OF THE COPPER RIVER DELTA, ALASKA—Kaj Birket-Smith and Frederica de Laguna—*Univ. of Penn. Press*, 591 p., 15 pl., \$6. Both archaeology and ethnology of these vanishing Indians are described, and their culture traits are analyzed in order to trace their heritage. They are found to be mainly a Northwest Coast culture

"with a somewhat old-fashioned stamp," and are believed to have occupied their coastal home for a very long period indeed.

Science News Letter, October 7, 1939

Aeronautics—Biography

SOARING WINGS, A Biography of Amelia Earhart—George Palmer Putnam—*Harcourt, Brace*, 294 p., \$2.50. Gallant, adventurous Amelia Earhart will not be forgotten by her friends or by the American public. Her husband tells of her life, not sadly, but entertainingly as she would have wished.

Science News Letter, October 7, 1939

Entomology—Forestry

PRINCIPLES OF FOREST ENTOMOLOGY (2d. ed.)—Samuel Alexander Graham—*McGraw-Hill*, 410 p., \$4. Since this book first appeared, ten years ago, there have been numerous advances in forest entomology, which have justified the preparation of a new and revised edition.

Science News Letter, October 7, 1939

Economics—Geography

INDUSTRIAL GEOGRAPHY—Charles E. Landon—*Prentice-Hall*, 811 p., \$4. With present concern over the role of resources in world affairs, up-to-date texts on economic geography have far more than academic interest. This volume, intended primarily for college students and business men, presents facts and figures and the significant underlying principles and conditions which explain them. The United States is given 23 chapters of detailed analysis; foreign countries or regions receive a chapter apiece.

Science News Letter, October 7, 1939

Zoology

PROTOZOOLOGY (2d. ed.)—Richard Roksabro Kudo—*C. C. Thomas*, 689 p., \$6.50. This new edition takes advantage of progress in protozoology, especially new discoveries and reclassifications, in the eight years since the appearance of the first edition.

Science News Letter, October 7, 1939

General Science

THE NEW WONDER BOOK OF KNOWLEDGE (Rev. ed.)—Henry Chase Hill, comp., and Will H. Johnston, ed.—*Winston*, 600 p., \$1.89.

Science News Letter, October 7, 1939

Aeronautics

HEROES OF THE AIR (Rev. ed.)—Chel-sea Fraser—*Crowell*, 846 p., \$2.50. This edition is brought up to date, including the first commercial transatlantic flights in June of this year.

Science News Letter, October 7, 1939

Photography

MODERN PHOTOGRAPHY, The Studio Annual of Camera Art, 1939-40—C. G. Holme, ed.—*Studio*, 136 p., \$2.50 paper, \$3.50 cloth. A beautiful collection of photographs for which technical data are provided in the interest of those who take and develop pictures themselves. A color section is included.

Science News Letter, October 7, 1939

Geography—Entomology

TO THE LOST WORLD—Paul A. Zahl—*Knopf*, 268 p., \$2.75. The author went into the jungles of British Guiana to get live collections of the largest and fiercest ants in the world. He got them—also discovered a couple of towering waterfalls, had a few rather narrow escapes, and in general went through a highly exciting experience. His vivid account carries the reader right to the spot.

Science News Letter, October 7, 1939

Geology—Engineering

GEOLOGY AND ENGINEERING—Robert F. Legget—*McGraw-Hill*, 650 p., \$4.50. If our houses are not to be built upon the sands, the engineer must ever take counsel with the geologist. Better if he is something of a geologist himself. This comprehensive book makes the latter desirable alternative possible. It is well annotated.

Science News Letter, October 7, 1939

Hygiene

IS THERE A BABY IN THE HOUSE?—Eleanor Gale Carroll—*Doubleday, Doran*, 205 p., \$1.98. A great deal of helpful advice and common sense is delivered in breezy and amusing style in this book for young parents.

Science News Letter, October 7, 1939

Biography

HARDLY A MAN IS NOW ALIVE, The Autobiography of Dan Beard—Dan Beard—*Doubleday, Doran*, 361 p., \$3. At ninety, Dan Beard presents the world with his biography—the story of a very long, vividly colorful life. The book is crammed with incident and anecdote, and it is evident (if indeed any additional evidence is needed) that the old Scout Master has enjoyed every day of his sojourn on this planet.

Science News Letter, October 7, 1939

Physics

PHYSICS FOR SCIENCE STUDENTS—Harold C. Barker and Melvin R. Harkins—*Pitman*, 506 p., \$3.50. A textbook for second year college students, as taught at the University of Pennsylvania.

Science News Letter, October 7, 1939

First Glances at New Books

Additional Reviews

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Economics

WHITE SETTLERS IN THE TROPICS—A. Grenfell Price—*American Geographical Soc.*, 311 p., \$4. Can Europeans successfully take a literal "place in the sun"—permanently colonize the tropics? Dr. Price examines the question in every tropical land in the world, in the light of both historical perspective and present-day economic, hygienic and other factors. The general conclusion is that it can be done—but only if the whites themselves labor with their hands. If there are exploitable colored populations, native or imported, degradation overtakes the poorer whites forced to compete with them, and degeneration and decay the owning and exploiting whites at the top.

Science News Letter, October 7, 1939

Chemistry

THE RAMAN EFFECT AND ITS CHEMICAL APPLICATIONS—James H. Hibben and Edward Teller—*Reinhold*, 544 p., \$11. Here is the most encyclopedic book on Raman spectra which has yet appeared. Written by leading workers in this field it will be "standard" for years to come. It is strictly a book for the expert.

Science News Letter, October 7, 1939

Sociology

PERSONNEL ENHANCEMENT IN SCHOOL AND INDUSTRY—John D. Beatty—*Pittsburgh Personnel Assoc.*, 21 p., 50c.

Science News Letter, October 7, 1939

Meteorology

AN ANALYSIS OF WINTER TEMPERATURES FOR ONE HUNDRED AND TWENTY CITIES—Clark M. Humphreys—*Carnegie Inst. of Tech.*, 36 p., 50c. This study is intended to be a basis for the selection of heating design temperatures.

Science News Letter, October 7, 1939

Physiology

HUMAN PHYSIOLOGY, A Textbook for High Schools and Colleges (8th. ed.)—Percy Goldthwait Stiles; Rev. by Gordon C. Ring—*Saunders*, 450 p., \$2.25.

Science News Letter, October 7, 1939

Botany

A REVISION OF BESLERIA—C. V. Morton—*Govt. Print. Off.*, 79 p., 15c.

Science News Letter, October 7, 1939

Climatology—Medicine

MEDICAL CLIMATOLOGY—Clarence A. Mills—*Thomas*, 296 p., \$4.50. Within recent years there has been a revival of interest in the effects of climate and weather on man's health and well-being. Dr. Mills is one of the modern pioneers

who have investigated the subject extensively. While his book is written primarily for the medical and public health professions, it will be interesting reading for the layman as well.

Science News Letter, October 7, 1939

Physiology

OUTLINE OF PHYSIOLOGY—William R. Amberson and Dietrich C. Smith—*Crofts*, 412 p., \$4. This book should serve admirably either as an introduction for beginning students of physiology or as a summary for those who have been unable to keep abreast of all the new developments in the field and wish to refresh and reorient their knowledge. The clear, fluent style makes for easy reading.

Science News Letter, October 7, 1939

Physics

PHYSIK FÜR DAS STUDIUM AN TECHNISCHEN HOCHSCHULEN UND UNIVERSITÄTEN UND ZUM GEBRAUCH IN DER PRAXIS—Paul Wessel—*Ernst Reinhardt, München*, 514 p., 4.90 RM.

Science News Letter, October 7, 1939

Technology

RAYON AND STAPLE FIBER HANDBOOK (3rd. ed.)—Herbert R. Mauersberger and E. W. K. Schwarz—*Rayon Handbook Co.*, 832 p., \$4.50. For the expert in rayon production is this book giving a comprehensive summary of the subject.

Science News Letter, October 7, 1939

Autobiography—Engineering

MY 50 YEARS IN ENGINEERING—Embury A. Hitchcock in collaboration with Merrill Weed—*Caxton*, 277 p., \$3. A noted teacher looks back on his academic life and gives a cross section of a half century of engineering progress.

Science News Letter, October 7, 1939

Engineering

ELECTRICITY TO-DAY—T. B. Vinycomb—*Oxford Univ. Press*, 192 p., \$1.75. British popular book on electricity in layman's language. This is one of the clearest and best written books in its field in many months.

Science News Letter, October 7, 1939

Archaeology

NEO-BABYLONIAN DOCUMENTS IN THE UNIVERSITY OF MICHIGAN COLLECTION—Ellen Whitley Moore—*Univ. of Mich. Press*, 71 p., 75 pl., \$2. Ninety-six cuneiform documents, dealing mainly with business transactions are copied here, and a transliteration and a translation are provided.

Science News Letter, October 7, 1939

Astronomy

THE GLASS GIANT OF PALOMAR—David O. Woodbury—*Dodd, Mead*, 368 p., \$3. The biography of the 200-inch telescope which will soon be mirroring the stars in California, written delightfully with an insight into the humanness of the scientists concerned. We need more such books making scientists live in flesh and blood for, as the author remarks, scientists do live even if they are scientists. Of necessity, much more than the 200-inch telescope itself is covered. This is the story of Hale and a large slice of American astronomy since the turn of the century.

Science News Letter, October 7, 1939

Housing

LAND, MATERIALS, AND LABOR COSTS—Jacob Crane, Frederick Bigger, Pierre Blouke, Theodore J. Kreps, Mercer G. Evans and George N. Thompson—*Govt. Print. Off.*, 101 p., 30c. (National Resources Comm. Housing Monograph Series, No. 3).

Science News Letter, October 7, 1939

General Science

THE MUSEUM IN AMERICA—Laurence Vail Coleman—*American Association of Museums*, Three vol., 730 p., \$7.50 per set. Convenient for handling, this new reference work on museums of the United States is in three volumes. In the first two, Mr. Coleman offers a critical study of various types of museum, their equipment, financing, policies, techniques, public relations, goals and limitations. The third volume lists 2,480 museums of various classes, and adds a list of early museums from Revolutionary days to 1850.

Science News Letter, October 7, 1939

Education—Nutrition

TEACHING NUTRITION IN BIOLOGY CLASSES—N. Eldred Bingham—*Teachers College, Columbia Univ.*, 115 p., \$1.85. "An experimental investigation of high school biology pupils in their study of the relation of food to physical well-being."

Science News Letter, October 7, 1939

Engineering

SIMPLE BLUEPRINT READING WITH PARTICULAR REFERENCE TO WELDING AND WELDING SYMBOLS OF THE AMERICAN WELDING SOCIETY—*Lincoln Electric Co.*, 141 mimeographed p., 50 c. (U. S.), 75c. (foreign). While designed primarily for the use of welders the instructions given in this book are valuable to other trades.

Science News Letter, October 7, 1939